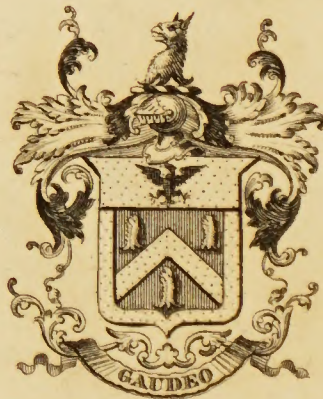






Cornelia Arnold's

<sup>the</sup>  
July 5 1796



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AN  
ASTRONOMICAL  
AND  
GEOGRAPHICAL  
CATECHISM.

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For the Use of Children.

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ASTRONOMICAL

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A N

*Astronomical & Geographical*  
**CATECHISM.**

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*Quest.* **W**HAT does astronomy treat of ?

*Ans.* Astronomy treats of the sun, stars, planets, comets, and other heavenly bodies.

*Q.* Who first attended to this science ?

*A.* The Shepherds, on the plains of Egypt and Babylon.

*Q.* How many primary planets are there ?

*A.* Seven, which revolve round the Sun in the following order ;



4 AN ASTRONOMICAL *and*

Mercury, Venus, Earth, Mars, Jupiter, Saturn, and Herschel.

Q. What is the diameter of the Sun.

A. Eight hundred and ninety thousand English miles.

Q. What is its distance from the Earth ?

A. Ninety five million miles.

Q. What is the distance of Herschel from the Sun ?

A. Eighteen hundred million miles.

Q. In what time is the revolution of Herschel performed ?

A. In eighty-two years.

Q. In what time is the revolution of the Earth performed ?

A. In one year, or 365 days, 5 hours, 48 minutes, 57 seconds.

Q. How many secondary planets, or moons, are there ?

A. Fourteen. The Earth has one, Jupiter four, Saturn seven, and Herschel two.

Q. What are the motions of the planets called ?



*A.* Their motion round the Sun is called their *annual* motion, and that upon their own axis is called their *diurnal* motion.

*Q.* What are comets?

*A.* Comets are large, opaque bodies, which move in very elliptical orbits, and in all possible directions; having long, fiery, transparent tails. Some appear no bigger than stars, others as big as the moon.

*Q.* How many comets are there in our system?

*A.* It is not known. Twenty-one have been seen, and the periods of three have been determined.

*Q.* What is meant by the solar system?

*A.* The seven planets, with their fourteen satellites or moons, make the solar system, which is sometimes called the Copernican system.

*Q.* What do you suppose the fixed stars are?

*A.* I suppose they are suns to oth-



er worlds, as they shine with their own light.

Q. What is their distance from the Earth?

A. It is not certainly known. It is supposed, however, they are, at least, a hundred thousand times farther from it than the Sun is.

Q. How long would it take a cannon ball to reach them?

A. Seven hundred thousand years.

Q. What is the number of stars discernible by the help of a telescope.

A. About three thousand.

Q. Is the Earth perfectly round?

A. No. It is about thirty miles further through the equator, than it is from pole to pole.

Q. What is the circumference of the Earth?

A. Twenty-five thousand and thirty-eight miles.

Q. What is its diameter?

A. Seven thousand nine hundred and seventy miles.



## GEOGRAPHICAL CATECHISM. 7

Q. What reasons have you to suppose the Earth to be round ?

A. 1. This shape is best adapted to motion. 2. From the appearance of its shadow in eclipses of the moon. 3. From analogy ; all other planets being round. 4. From its having been circumnavigated many times.

Q. Who first sailed round the world ?

A. Magellan ; and, after him, Francis Drake, Thomas Cavendish, Lord Anson, Captain Cook, & others.

Q. What is an artificial globe ?

A. A round body, on which all parts of the Earth are represented.

Q. What is the axis of the Earth ?

A. An imaginary line, passing through the centre of the Earth, from north to south, the ends of which are called the poles.

Q. How many great circles are there ?

A. Six ; the equator, the meridi-



an, the horizon, the ecliptic, and the two colures.

Q. How many degrees are there in surrounding the globe ?

A. Three hundred and sixty. Each degree measures sixty miles, and each mile is sixty minutes.

Q. How many smaller circles are there ?

A. Four ; the two tropicks, and two polar circles.

Q. What is the equator, or equinoctial line ?

A. It is a line which encompasses the Earth in the middle, from east to west, on which the degrees of longitude are marked.

Q. What is the meridian ?

A. It is represented on the globe by a brass ring, passing through the poles as it encompasses the globe ; on which the degrees of latitude are marked. When it is noon in any place, the Sun is then in the meridian of that place ; and in all other



GEOGRAPHICAL CATECHISM. 9

places directly north or south of it.

Q. Where do geographers begin to count longitude?

A. From some assumed meridian. The English begin from that of London, the French from that of Paris, and the Americans from that of Philadelphia.

Q. What is the ecliptick?

A. That circle in which the Sun appears to move round the Earth once a year. It is divided into twelve signs, each containing thirty degrees, viz. Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius, Pisces.

Q. What is the zodiac?

A. It is comprehended between two lines, at the distance of eight degrees from the equator, on each side of it. *ecliptic*

Q. What is the horizon?

A. It is represented on the globe by a broad wooden circle, dividing the globe into the upper and lower



hemispheres. When the Sun is rising and setting, he is in the horizon.

Q. What are the colures ?

A. They divide the globe into four equal parts, passing through the points Aries, and Libra, Cancer and Capricorn.

Q. What are the tropics ?

A. They are two circles drawn parallel to the equator, at the distance of  $23^{\circ} 30'$  on each side of it.

Q. What are the polar circles ?

A. They are drawn  $23^{\circ} 30'$  from the poles. The northern is called the *arctic*, and the southern the *antarctic* circle.

Q. How many zones are there ?

A. Five ; one torrid, two temperate, and two frigid zones.

Q. What is meant by a climate ?

A. It is a tract of the earth, comprehended between two parallels of latitude, at such a distance as to make one half hour's difference in the length of the day.



## GEOGRAPHICAL CATECHISM. II

Q. What do you mean by latitude?

A. Latitude is the distance of a place from the equator, either north or south.

Q. What is meant by longitude?

A. It is the distance from a certain meridian, either east or west. The length of a degree diminishes as you depart from the equator towards the poles, where it comes to a point.

Q. What do you mean by the atmosphere?

A. It is the air which we breathe; and it extends about 45 miles in height.

Q. What causes the ebbing and flowing of the tide?

A. The attraction of the Sun and Moon; chiefly that of the latter.

Q. What are clouds?

A. Collections of vapours, exhaled from the Earth by the attraction of the Sun or other causes.

Q. What causes an eclipse of the Sun?

B



*A.* The Moon, when it passes between the Sun and the Earth.

*Q.* What causes an eclipse of the Moon ?

*A.* The Earth, as it passes between the Sun and the Moon.

*Q.* How is the Earth divided with respect to land and water ?

*A.* About three fourths of its surface is covered with water, the rest is land.

*Q.* What is a continent ?

*A.* A large tract of land, comprehending several kingdoms, &c.

*Q.* How many continents are there ?

*A.* Two, the eastern and western. The eastern continent comprehends Europe, Asia and Africa ; the western, North and South America. New Holland begins now to be called a continent by some.

*Q.* What is an island ?

*A.* A tract of land entirely surrounded by water.

*Q.* What is a peninsula ?



GEOGRAPHICAL CATECHISM. 13

*A.* It is a tract of land almost surrounded by water, joined to the main land only by a narrow neck.

*Q.* What is an isthmus?

*A.* It is that narrow neck of land which joins a peninsula to the main land.

*Q.* What is a promontory?

*A.* It is a high point of land, extending far into the sea. When it is flat, it is called a cape.

*Q.* What do you mean by an ocean?

*A.* An ocean is a vast collection of water, not separated by land, dividing one continent from another.

*Q.* How many oceans are there?

*A.* Five; the Atlantic, between America and Europe; the Pacific, between Asia and America; the Indian, between Africa and the East-Indies; the northern and southern frozen oceans.

*Q.* What is meant by a lake?



*A.* A lake is a large collection of water, entirely surrounded by land.

*Q.* What is a sea?

*A.* A sea or gulf is part of an ocean, surrounded by land, excepting a narrow pass; which pass is called a strait.

*Q.* What is a bay?

*A.* A bay is part of the sea, extending into the main land, commonly between two capes.

*Q.* What are rivers?

*A.* Large streams running into the sea, originally derived from springs. When they are small, they are called brooks, rivulets, rills, &c.

*Q.* When was America discovered, and by whom?

*A.* In the year 1492, by Christopher Columbus, a native of Genoa, who made four voyages to this continent.

*Q.* Why was it called America?

*A.* It was named America in honour of Americus Vesputius, who



ungenenrously robbed Columbus of the honour which properly belonged to him.

Q. Whose service was Columbus in, when he made this discovery ?

A. In the service of the Court of Spain, who, at first, paid him great honours ; but, in the latter part of his life, treated him shamefully.

Q. What is the extent of America ?

A. It extends from the north pole to Cape Horn, in  $46^{\circ}$  south latitude ; being nearly ten thousand miles long. Its breadth is not known.

Q. What are the principal rivers of America ?

A. The Amazon, La Plata, and Oronoke, in South America : The Mississippi and St. Lawrence in North America.

Q. Which are the principal mountains ?



*A.* The Andes, in South America, are the highest mountains in the world, being upwards of twenty thousand feet in height. The principal mountains in North America are the Allegany Mountains.

*Q.* What were the inhabitants of America, when the Europeans discovered it ?

*A.* It was peopled by various tribes of savages, who still occupy the largest part of the continent.

*Q.* How do you suppose America was first peopled ?

*A.* It is probable it was peopled from the north-east part of Asia, from which it is divided by a narrow strait only.

*Q.* What part of North-America was first settled by Europeans ?

*A.* Quebec, in 1608, by the French.

*Q.* What part was settled next ?

*A.* Virginia, in 1609, by the English. New-England began to be



GEOGRAPHICAL CATECHISM. 17

settled in 1620. Plymouth, in Massachusetts, was the first spot pitched upon.

Q. How many United States are there, and what are their capital towns ?

A. Fifteen, which are,

*States.*

New-Hampshire  
Massachusetts  
Rhode-Island  
Connecticut  
Vermont  
New-York  
New-Jersey  
Pennsylvania  
Delaware  
Maryland  
Virginia  
Kentucky  
North-Carolina  
South-Carolina  
Georgia

*Capitals.*

Portsmouth.  
Boston.  
Newport.  
New-haven.  
Bennington.  
New-York.  
Trenton.  
Philadelphia.  
Dover.  
Annapolis.  
Richmond.  
Lexington.  
Edenton.  
Charleston.  
Augusta.

Q. What is the situation and extent of the United States ?



*miles.*  
*A.* Length 1250 }  
 Breadth 1040 } between {  $31^{\circ}$  and  $46^{\circ}$  N. Lat.  
 $8^{\circ}$  E. &  $24^{\circ}$  W. Long.

bounded by Canada and the lakes on the north ; by the Mississippi on the west ; by East and West Florida on the south ; by the Atlantic and Nova-Scotia on the south-east and east.

*Q.* What are the names of the lakes ?

*A.* The principal ones are Lake Superior, Lake Michigan, Lake Huron, Lake Erie, Lake Ontario, and many others.

*Q.* What are the principal rivers in the United States ?

*A.* The Mississippi, the Ohio, the Potowmack, the Hudson, Connecticut, &c. &c.

*Q.* Which are the principal bays ?

*A.* The bay or gulph of St. Lawrence, Chebucto bay, Delaware bay, Chesapeak bay, Massachusetts bay, &c.

*Q.* What are some of the princi-



## GEOGRAPHICAL CATECHISM. 19

pal animals of the American woods ?

*A.* The Mammoth, (supposed by its bones to be one of the largest animals in the world ; but whether any of them are now living, is uncertain :) the Buffalo, the Tyger, the Panther, the Elke, the Moose, the Deer, &c. The Beaver, the Opossum, and the Skunk, are curious animals.

*Q.* What are some of the most curious birds ?

*A.* The Humming Bird, which is the least of all the feathered tribe ; the Whip-poor-will, the Pelican, &c.

*Q.* Are there any serpents in the United States ?

*A.* There are many ; the most venomous of which is the Rattle-Snake.

*Q.* What is the number of inhabitants ?

*A.* About four millions.

*Q.* What is the government of the United States ?



*A.* Republican. The different states are free and independent, confederated under the general government of a president, vice president, and congress.

*Q.* What power did they belong to, before the late war ?

*A.* To Great-Britain.

*Q.* What was the occasion of the war which separated them from that power ?

*A.* The oppressive measures of the British government.

*Q.* When did the war begin, and where ?

*A.* It began in the year 1775, at Lexington, in Massachusetts ; and ended in 1782, in honour of the United States, and to the disgrace of the British nation.

*Q.* What states are called New-England States ?

*A.* New-Hampshire, Massachusetts, Rhode-Island, Connecticut, and Vermont.



GEOGRAPHICAL CATECHISM. 21

Q. What is the number of inhabitants in the New-England States ?

A. About one million.

Q. What is the face of the country ?

A. In general, rough and mountainous.

Q. What is the state of literature ?

A. Superior, perhaps, to that of any other country in the world. Schools are established by law, in almost all the townships.

Q. What is the religion of New-England ?

A. The principal sects are Congregationalists, Presbyterians, Baptists, Episcopalians, Quakers, &c.

Q. Where does New-Hampshire lie ?

A. It is the most northerly of all the states ; bounded on the north-east by the province of Maine ; on the west, by Vermont ; and on the south, by Massachusetts.

Q. What is the number of inhabitants ?



*A.* One hundred and forty-one thousand.

*Q.* What is the climate, soil, &c.?

*A.* Cold, but healthy. It is mountainous ; and in some parts, barren.

*Q.* What is the state of literature?

*A.* In Hanover, there is a college, called Dartmouth-College ; and at Exeter, an academy ; both in a flourishing state.

*Q.* What state lies next to New-Hampshire ?

*A.* Massachusetts, containing four hundred and seventy-five thousand inhabitants, divided into seventeen counties, and three hundred and sixty-five townships.

*Q.* What is the state of literature ?

*A.* There is a university at Cambridge, and a number of flourishing academies in other places.

*Q.* What is the number of inhabitants, and meeting houses, in Boston ?

*A.* About twenty-five thousand



inhabitants, and eighteen houses for publick worship.

Q. What are the other principal towns ?

A. Salem, Newbury-Port, Marblehead, Worcester, Ipswich, Gloucester, Portland, &c.

Q. Where is the Province of Maine ?

A. It lies between New-Hampshire and Nova-Scotia, and belongs to Massachusetts.

Q. What state lies next in order ?

A. Rhode-Island, sixty-eight miles by forty, containing sixty-nine thousand inhabitants.

Q. What is the state of literature ?

A. It is chiefly confined to their two capital towns, Newport and Providence, in the latter of which is a college, called Rhode-Island College.

Q. What is the next state ?

C



*A.* Connecticut, eighty-two miles by fifty-seven, containing two hundred and three thousand inhabitants, and five incorporated towns, or cities, viz. New-Haven, Hartford, Middletown, Norwich, and New-London.

*Q.* What is the state of literature?

*A.* Very flourishing. In New-Haven is a college, called Yale College; and in several other towns there are academies.

*Q.* Where is Vermont?

*A.* It is an inland state, lying between Canada and Massachusetts, containing one hundred thousand inhabitants.

*Q.* Where is New-York state?

*A.* It lies to the westward of New-England, containing two hundred and thirty-nine thousand inhabitants.

*Q.* What cities has it?

*A.* New-York, Albany, Hudson, Lansingburg, and Troy; the former of which contains about forty thou-



land inhabitants, and twenty-two houses of public worship.

Q. What is the state of literature?

A. There is a college in New-York city; and they are now making provision for public schools.

Q. What state lies next?

A. New-Jersey, containing two hundred thousand inhabitants.

Q. What is the state of literature?

A. There is a college at Princeton, and several academies in other parts of the state.

Q. What state is next?

A. Pennsylvania, containing four hundred and thirty-four thousand inhabitants. Philadelphia contains about sixty thousand inhabitants, and twenty six houses of worship.

Q. What are their improvements in literature?

A. Very great. There are no less than three colleges, beside many schools.

Q. What are the next states?



*A.* Delaware, a small state ; Maryland, containing two hundred and thirteen thousand inhabitants ; Virginia, which is the oldest state in the union, containing seven hundred and forty-seven thousand inhabitants. It has a university, but not in high repute ; and a number of academies.

*Q.* What are the other four states ?

*A.* North-Carolina, South-Carolina, Georgia and Kentucky. None of them quite so celebrated for literature as the other states : Charleston, however, is not deficient in learning and politeness.

*Q.* What other dominions are there in North-America ?

<i>Dominions.</i>	<i>Capitals.</i>
<i>A.</i> New-Britain	
Canada	Quebec.
Nova-Scotia	Halifax.
East & West Florida	St. Augustine.
Louisiana	New-Orleans.
Mexico	Mexico.



GEOGRAPHICAL CATECHISM. 27

Q. What are the dominions of South-America ?

<i>Dominions.</i>	<i>Capitals.</i>
A. Terra Firma	Panama.
Peru	Lima.
Amazonia	St. Pedro.
Guiana	Surinam.
Brazil	St. Bastia.
La Plata	Buenos Ayres.
Chili	St. Jago.
Patagonia	

These belong chiefly to Spain, Portugal, and the natives.

Q. What are the kingdoms of Europe, with their capitals ?

<i>Kingdoms.</i>	<i>Capitals.</i>
A. Russia	Petersburg.
Sweden	Stockholm.
Denmark	Copenhagen.
Poland	Warsaw.
Germany	Vienna.
Prussia	Koningsburg.
France	Paris.
Holland	Amsterdam.

<i>Kingdoms.</i>	<i>Capitals.</i>
England	London.
Scotland	Edinburgh.
Ireland	Dublin.
Switzerland	Bern.
Italy	Rome.
Portugal	Lisbon.
Spain	Madrid.
Hungary	Prefburg.
Turkey	Constantinople.

Q. What are the dimensions of Europe?

A. 3000 miles by 2500.

Q. What are the dimensions of Asia?

A. 4800 miles by 4300.

Q. What are the dominions of Asia?

<i>Dominions.</i>	<i>Capitals.</i>
A. China	Pekin.
Tartary	Tobolski & Tibet.
Persia	Ispahan.
India	Delhi.
Turkey	Jerusalem.
Arabia	Mecca.



Q. What are the dimensions of Africa ?

A. Four thousand three hundred miles by three thousand five hundred.

Q. What are its dominions ?

A. Egypt, Barbara, Guinea, Zara, Negroland, Ethiopia, and the Islands.

Q. What are the principal islands of America ?

A. The West-India Islands, Cape Breton, Long Island, Rhode-Island, &c.

Q. What are the principal islands of Europe ?

A. England, Ireland, Sicily, Sardinia, Majorca, Minorca, &c.

Q. What are the principal islands of Asia ?

A. Borneo, Ceylon, Japan, Philippines, &c.

Q. What are the principal islands of Africa ?

A. Madagascar, Canary Isles, Comorra Isles, Cape Verde Isles, &c.

Q. How many inhabitants is it thought there are in the world ?

A. 950 millions.

Q. Which quarter of the globe contains the largest number ?

A. Asia contains by far the largest number.

Q. How great a part of the inhabitants of the globe are called Christians ?

A. Perhaps about one seventh.

Q. What are the general divisions of the Christian religion ?

A. Roman Catholicks, Protestants, and the Greek church.

Q. How long is it since the world was created ?

A. Five thousand seven hundred and ninety-three years.

Q. Where is it supposed the garden of Eden was ?

A. In some part of Asia.

Q. Where is Jerusalem ?

A. At the east end of the Mediterranean sea.



GEOGRAPHICAL CATECHISM. 31

Q. Which are some of the most populous cities in the world ?

A. Nankin, Pekin, London, Paris, Grand Cairo, &c. Nankin is said by some to contain four millions of inhabitants, and Pekin two millions.

Q. What are some of the principal rivers on the eastern continent ?

A. The Danube, the Nile, the Rhine, Rhone, Euphrates, Indus, Don, Walga, &c.

Q. What does England abound in, principally ?

A. In grain, and in almost all kinds of manufactures, especially woollen cloths.

Q. What does France principally abound in ?

A. Wines, fruits of various kinds, and manufactures.

Q. What does Spain principally abound in ?

A. Gold, silver, and fruits.

Q. Which is the most direct way from the United States to China ?



*A.* Cross the Atlantic, double the Cape of Good-Hope, and pass on through the Indian Ocean.

*Q.* Which is the direct way to Kamschatka ?

*A.* Sail down the eastern coast of South-America, double Cape Horn, or pass through the straits of Magellan, and then steer north-west.

*Q.* Which is the route to Peterf-burg in Russia ?

*A.* Cross the Atlantic, pass thro' the English Channel, and then up the Baltic.

*Q.* Which is the route to Spain, Italy, Constantinople, Jerusalem, Algiers, &c.

*A.* Cross the Atlantic, pass the straits of Gibraltar into the Mediterranean sea, and you may sail to any of those places.

F I N I S.

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